AMENDMENTS TO THE CLAIMS

1. (Currently amended) In a communication network that includes a plurality of nodes interconnected by links, the nodes including at least first and second nodes, a method for routing a data flow, comprising:

allocating a respective number of quanta of one or more resources in the network to each of the nodes;

receiving a request at the first node to ~~allocate~~ use a portion of the ~~one or more~~ resources ~~in the network~~ so as to carry the data flow between the first and second ~~ones of the~~ nodes over one of a plurality of paths therebetween, each such path comprising a respective sequence of the links;

if the resources already allocated to the first node on one of the paths are sufficient, directing the data flow from the first node to the second node over the one of the paths;

if the resources already allocated to the first node are insufficient, requesting an increase in an allocation to the first node of the requested resources;

determining, for the links comprised by each of the paths, respective levels of use of the requested resources due to communications in ~~process~~ progress over the network; ~~and~~

selecting which of the paths is to carry the data flow responsive to the determined levels of use of the requested resources on the links comprised in each of the paths; and

increasing the allocation of the resources to the first node on the selected path by a predetermined quantum.

2. (Original) A method according to claim 1, wherein the network comprises an Internet Protocol (IP) network.

3. (Original) A method according to claim 1, wherein the nodes are interconnected in a ring, and wherein the plurality of paths comprises a first path traversing the ring in one direction and a second path traversing the ring in the opposite direction, and wherein selecting which of the paths is to carry the data flow comprises selecting the first or the second path.

4. (Original) A method according to claim 3, wherein selecting the first or the second path comprises conveying the data flow over an inner or outer data link ring within the network provided by a Spatial Reuse Protocol (SRP).

5. (Original) A method according to claim 1, wherein the one or more resources comprise a link bandwidth.

6. (Original) A method according to claim 1, wherein the one or more resources comprise a processing power associated with each of the links.

7. (Original) A method according to claim 1, wherein selecting which of the paths is to carry the data flow comprises comparing an amount of the one or more resources requested to a resource budget assigned to the first node, and permitting the data flow only if allocating the requested resources will not cause a total of the resources allocated to the first node to exceed the budget.

8. (Original) A method according to claim 7, wherein comparing the amount of the one or more resources comprises comparing the amount of each of the resources requested to the resource budget assigned for each of the resources, and wherein permitting the data flow comprises permitting the flow only if all of the resources requested for at least one of the paths are within the budget.

9. (Currently amended) A method according to ~~claim 1~~ claim 12, wherein selecting which of the paths is to carry the data flow comprises increasing an allocation to the first node of the one or more requested resources on the selected path by a predetermined quantum.

10. (Original) A method according to claim 1, wherein selecting which of the paths is to carry the data comprises verifying that a sufficient amount of the requested resources is available to carry the data flow on every one of the links comprised in the selected path.

11. (Original) A method according to claim 1, wherein selecting which of the paths is to carry the data flow comprises selecting the one of the paths having the lowest level of a predetermined measure of use of the requested resources.

12. (Currently amended) In a communication network that includes a plurality of nodes interconnected by links, a method ~~according to claim 11,~~ for routing a data flow, comprising:

receiving a request to allocate one or more resources in the network so as to carry the data flow between first and second ones of the nodes over one of a plurality of paths therebetween, each such path comprising a respective sequence of the links;

determining, for the links comprised by each of the paths, respective levels of use of the requested resources due to communications in progress over the network; and

selecting which of the paths is to carry the data flow responsive to the determined levels of use of the requested resources on the links comprised in each of the paths,

wherein selecting which of the paths is to carry the data flow comprises selecting the one of the paths having the lowest level of a predetermined measure of use of the requested resources, and

wherein selecting the one of the paths comprises finding, for each of at least two of the paths, a maximum level of use of at least one of the requested resources, taken over all of the links comprised in the paths, and selecting the one of the paths having the lowest maximum level of use.

13. (Original) A method according to claim 1, wherein receiving the request comprises choosing a dispatcher within the network to manage allocation of the resources, wherein the dispatcher receives and processes the request.

14. (Original) A method according to claim 13, wherein choosing the dispatcher comprises choosing one of the nodes to act as the dispatcher.

15. (Currently amended) A communication network, comprising:

a plurality of nodes;

a plurality of links, interconnecting the nodes to provide communications therebetween; and

a dispatcher, coupled to receive a request to allocate one or more resources in the network so as to carry the data flow between first and second ones of the nodes over one of a plurality of paths therebetween, each such path comprising a respective sequence of the links, and adapted to determine, for the links comprised in each of the paths, respective levels of use of the requested resources due to communications in ~~process~~ progress over the network and to select which of the paths is to carry the data

flow responsive to the determined levels of use of the requested resources on the links comprised in each of the paths,

wherein the dispatcher is adapted to select for carrying the data flow the one of the paths that has the lowest level of a predetermined measure of use of the requested resources, and

wherein the measure of use comprises, for each of at least two of the paths, a maximum level of use of at least one of the requested resources, taken over all of the links comprised in the paths.

16. (Original) A network according to claim 15, wherein the nodes are adapted to communicate using an Internet Protocol (IP).

17. (Original) A network according to claim 15, wherein the nodes are interconnected in a ring, and wherein the plurality of paths comprises a first path traversing the ring in one direction and a second path traversing the ring in the opposite direction, and wherein the dispatcher is configured to select the first or the second path to carry the data flow.

18. (Original) A network according to claim 17, wherein the first and the second paths respectively comprise inner and outer data link ring within the network provided by a Spatial Reuse Protocol (SRP).

19. (Original) A network according to claim 15, wherein the one or more resources comprise a link bandwidth.

20. (Original) A network according to claim 15, wherein the one or more resources comprise a processing power associated with each of the links.

21. (Original) A network according to claim 15, wherein the dispatcher is adapted to compare an amount of the one or more resources requested to a resource budget assigned to the first node, and to permit the data flow only if allocating the requested resources will not cause a total of the resources allocated to the first node to exceed the budget.

22. (Original) A network according to claim 21, wherein the dispatcher is adapted to compare the amount of each of the resources requested to the resource budget assigned for each of the resources, and to permit the data flow only if all of the resources requested for at least one of the paths are within the budget.

23. (Original) A network according to claim 15, wherein the dispatcher is configured to change an allocation to the first node of the one or more requested resources on the selected path by a predetermined quantum.

24. (Original) A network according to claim 15, wherein the dispatcher is adapt to select one of the paths to carry the data flow only after verifying that a sufficient amount of the requested resources is available to carry the data flow on every one of the links comprised in the selected path.

25. (Currently amended) A network according to ~~claim 15~~ claim 31, wherein the dispatcher is adapted to select for carrying the data flow the one of the paths that has the lowest level of a predetermined measure of use of the requested resources.

26. (Original) A network according to claim 25, wherein the measure of use comprises, for each of at least two of the paths, a maximum level of use of at least one of the requested resources, taken over all of the links comprised in the paths.

27. (Original) A network according to claim 15, wherein the dispatcher is associated with one of the nodes.

28. (Original) A network according to claim 27, wherein the dispatcher is operative as a software process running on the associated node.

29. (New) A method according to claim 13, wherein requesting the increase in the allocation comprises requesting and receiving the allocation from the dispatcher.

30. (New) A method according to claim 1, and comprising, upon release of the requested resources:

comparing an amount of the resources that have been released to a predetermined threshold; and

if the amount is greater than the predetermined threshold, deallocating the predetermined quantum from the first node.

31. (New) A communication network, comprising:

a plurality of nodes, comprising at least first and second nodes;

a plurality of links, interconnecting the nodes to provide communications therebetween; and

a dispatcher, which is adapted to allocate a respective number of quanta of one or more resources in the network to each of the nodes,

wherein the first node is adapted, upon receiving a request to use a portion of the resources so as to carry the data flow between the first and second nodes over one of a plurality of paths therebetween, each such path comprising a respective sequence of the links, to direct the data flow from the first node to the second node over one of the paths if the resources already allocated to the first node on the one of the paths are sufficient, and to request an increase in an allocation of the requested resources to the first node if the resources already allocated to the first node are insufficient, and

wherein the dispatcher is adapted to determine, for the links comprised in each of the paths, respective levels of use of the requested resources due to communications in progress over the network and to select which of the paths is to carry the data flow responsive to the determined levels of use of the requested resources on the links comprised in each of the paths, and to increase the allocation of the resources to the first node on the selected path by a predetermined quantum.

32. (New) A network according to claim 30, wherein the first node is adapted, upon release of the requested resources, to compare an amount of the resources that have been released to a predetermined threshold, and if the amount is greater than the predetermined threshold, to deallocate the predetermined quantum from the first node.